

REMARKS

The Office Action dated October 23, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 22-46 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 1-21 were previously cancelled. No new matter has been added, and no new issues are raised which require further consideration or search. Therefore, claims 22-46 are currently pending in the application and are respectfully submitted for consideration.

The Office Action acknowledged that Applicants' arguments, in the Response filed on August 31, 2007, with respect to the rejections of claims 22-42 under 35 U.S.C. §§ 102 and 103 were fully considered and were persuasive, and therefore, the rejection was withdrawn. However, the Office Action also acknowledged, upon further consideration, that new grounds of rejection were made in view of the same references. The Office Action further stated that "newly added claims necessitated finality of this rejection."

The Office Action withdrew its objection to the drawings, in light of the claim amendments. The Office Action withdrew its objection to claims 22 and 33, in light of the claim amendments.

The Office Action rejected claim 44 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically the Office Action alleged that an IP address is

a data structure, since it is a logical arrangement of bytes to identify a network device, and that data structures are non-statutory subject matter under the MPEP. Claim 44 has been amended to recite “a unique internet protocol address embodied on a computer-readable medium.” Applicants respectfully submit that this amendment moots the rejection and respectfully request that the rejection be withdrawn.

The Office Action rejected claims 22-25, 28-36, and 39-46 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,829,230 (“Tiuri”). The Office Action took the position that Tiuri discloses all the elements of the claims with the exception of “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claims 33, and 43-46. The Office Action further took the position that it would have been obvious to one having ordinary skill in the art at the time the invention was made to code the geographical information into the suffix portion of the IP address since “it has been held that rearranging parts of an invention involves only routine skilled [sic] in the art,” citing *In re Japiske*. (see e.g. Office Action, page 3, third paragraph; see also Office Action, pages 4-7, relevant paragraphs). The rejection is respectfully traversed for at least the following reasons.

Claim 22, upon which claims 23-32 are dependent, recites a method, which includes generating a unique internet protocol address from the geographical location data. The internet protocol address has a global prefix portion and a local suffix portion. The geographical location information is coded in the suffix portion of the address.

Claim 33, upon which claims 34-42 are dependent, recites an apparatus, which includes a router configured to route internet protocol packets in which a unique address is based on geographical location information and has a global prefix portion and a local suffix portion. The apparatus is configured to harness the geographic location information coded to the suffix portion of the address in routing packets to destination nodes located in a subnetwork.

Claim 43 recites an apparatus, which includes routing means for routing internet protocol packets in which a unique address is based on geographical location information and has a global prefix portion and a local suffix portion. The apparatus is configured to harness the geographic location information coded to the suffix portion of the address in routing packets to destination nodes located in a subnetwork.

Claim 44 recites a unique internet protocol address embodied on a computer-readable medium, which includes a global prefix portion and a local suffix portion. The unique internet protocol address is generated from geographical location data of one of a node and a router connected to the node. The geographical location information is coded in the suffix portion of the unique internet protocol address.

Claim 45 recites a routing component, which includes a router configured to route internet protocol packets. A unique internet protocol address is based on geographical location information of either the routing component or a node connected to the routing component. The unique internet protocol address has a global prefix portion and a local suffix portion. The routing component is configured to utilize the geographic location

information, the geographic location information being coded to the suffix portion of the unique internet protocol address, in routing packets to destination nodes located in a subnetwork.

Claim 46 recites a system, which includes a router configured to route data packets between internet and a subnetwork, the subnetwork comprising a group of nodes. A unique internet protocol address is based on geographical location information of either the router or one node of the group of nodes. The unique internet protocol address has a global prefix portion and a local suffix portion, the router being configured to utilize the geographic location information, the geographic location information being coded to the suffix portion of the unique internet protocol address, in routing packets to destination nodes located in the subnetwork.

An advantage of the invention is that, with addressing based on the geographic location, the configuring of the link can be fully automatic, without the need of coordinating the allocation of unique MAC addresses between the device manufacturers. If the geographically based addressing is used in layer 3, the configuring and routing table generation of the network can be fully automatic. A further advantage is that the applications and the users can easily receive the geographic location information of the network device when it is built into the IP address of the device. The location information can be utilized in the geographically addressed network to improve the network performance. One example is to use it in the routing algorithm of an ad-hoc network to improve the routing performance. Furthermore, this kind of addressing based

on geographical location can be utilized in optimizing the radio connections between nodes, because the distance and direction of the destination node is known from the location-based addresses. Location-based services and service discovery functions, like finding the nearest printer, are easy to realize as the addresses directly indicate the geographic location of the device. Also, the geographically addressed networks are easy to integrate seamlessly to any IP based networks by using this principle. Yet another advantage is the compatibility with the present IPv6 applications. Utilization of the invention does not require any changes to the standards relating to IPv6.

As will be discussed below, Tiuri fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Tiuri discloses routing in a packet switched network. An address allocated to a user of a packet switched network includes information identifying a geographical location of the user, such as longitude, latitude, and altitude. The address is used to route data packets over the network from a remote location to the user, taking into account the geographical location of each router in relation to the location of the user. The geographical location of the user may be determined using a Global Positioning System receiver. The information identifying the geographical of the user may be contained in a header of each data packet to be routed.

Applicants respectfully submit, and the Office Action correctly concludes, that Tiuri fails to disclose, teach, or suggest, all of the elements of the present claims because Tiuri fails to disclose, teach, or suggest, at least, “wherein the geographical location

information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claims 33, and 43-46. (see e.g. Office Action at page 3, “Tirui discloses the claimed invention except for geographical location information is coded in the suffix part [sic].”).

Furthermore, Applicants respectfully submit that the element, “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claims 33, and 43-46, would not have been obvious to one of ordinary skill in the art, and that the Office Action has failed to establish a *prima facie* case of obviousness.

As reiterated by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385 (2007), the framework for the objective analysis for determining obviousness under 35 U.S.C. § 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries are: (a) ascertaining the differences between the claimed invention and the prior art; (b) ascertaining the differences between the claimed invention and the prior art; and (c) resolving the level of ordinary skill in the pertinent art. (see MPEP 2141; see also *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966)).

The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The court stated that “rejections on obviousness cannot be sustained by mere conclusory statements; instead there must be some

articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (see MPEP 2141; see also *KSR*, 550 U.S. at ___, 82 UPSQ2d at 1396.)

The Office Action appears to solely rely on the citation of *In re Japiske* to support its legal conclusion that “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claims 33, and 43-46, would have been obvious to one of ordinary skill in the art. *In re Japiske* will be addressed below. However, Applicants submit that the Office Action fails to take into account that Tiuri teaches away from the present invention, specifically, coding geographical location information in the suffix portion of an internet protocol address.

As described above, Tiuri discloses routing in a packet switched network. Furthermore, Tiuri discloses that when a mobile terminal is registered with a cellular telecommunication network, the internet protocol address allocated to the terminal comprises a prefix corresponding to the location of the connection node and a suffix part corresponding to the terminal identity. (see Tiuri at column 6, lines 9-15). The system disclosed in Tiuri has several significant drawbacks. When the geographical location information is assigned to a prefix portion of the internet protocol address, auto-configuring of the address is not always possible. The address can have duplicates, so, in practice, several terminals can have the same address. Additionally, the information of the address typically has no other added value for the user of the computer or network, and using a prefix also requires a change to the IPv6 standard. Finally, a major drawback for assigning the geographical location information to the prefix portion of the address is

the global nature of the prefix portion. If the prefix is generated from the geographical location information, the routing will change, and thus, the changes must be applied to all routers globally. (see “Background of the Invention” of the Specification at column 3, lines 17-29). These drawbacks are overcome by the present invention. Therefore, the “rearranging of parts,” as characterized by the examiner, results in significant innovative advantages that are not disclosed, or suggested, in Tiuri.

One particular advantage of the embodiments of the present invention results from the fact that, by using the geographical location in the suffix, it can be ensured that devices will have unique MAC addresses, and thus, they can be auto-configured. These devices can be stationary or mobile. In other words, the embodiments of the present invention allows auto-configurable location based addressing for mobile equipment also. In contrast, since the prefix portion is global in nature, changes to the prefix portion would require applying the changes globally to routing tables of routers. When routers are moving frequently, this results in vast amounts of traffic for merely keeping the routing tables up to date.

Tiuri fails to disclose or suggest any of these advantages, and thus, fails to disclose or suggest a motivation to modify the system of Tiuri to code the geographical location information in the suffix portion of the internet protocol address.

Rather, Tiuri merely discloses that a PC is arranged to run an IP address generation program either during installation, on request, or each time a user initiates an Internet access. (column 4, lines 27-30). Tiuri further discloses that while the PC selects

the IP address for its own use, it has to select the address in a manner which avoids an address conflict. (column 4, lines 43-47). Thus, the address allocation cannot be fully automatic as there is a need to coordinate the allocation of the unique local (MAC) address in the system disclosed in Tiuri. Furthermore, none of the embodiments discloses by Tiuri for IP address generation addresses a situation which occurs on a fully mobile equipment that needs constant updates while moving and using an Internet connection, such as in an ad hoc network. In contrast, in the present invention, the use of location information to define the suffix (the MAC address) ensures a unique MAC address automatically without any need for coordination between nearby nodes.

Thus, Applicants respectfully submit that Tiuri teaches away from the present invention, specifically, coding geographical location information in the suffix portion of an internet protocol address, and thus, that “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claims 33, and 43-46, would not have been obvious to one of ordinary skill in the art.

Finally, Applicants respectfully submit that *In re Japiske* has limited relevance to the issue of obviousness as it relates to the claims of the present application, and is not sufficient to establish a *prima facie* case of obviousness. The claims at issue in *In re Japiske* were directed to a hydraulic power press. With respect to one of the claims at issue, the court held that the claim read on the prior art reference except as to the final limitation, “means disposed in alignment with said opening for contact by said depending

means to start the pressing operation of said hydraulic press.” The court further held that the prior art reference, while not disclosing the final limitation, did disclose a starting switch in a different position, and that “there would be no invention in shifting the starting switch disclosed by [the reference] to a different position since the operation of the device would not thereby be modified.” (see *In re Japikse*, 86 USPQ 70, 73 (C.C.P.A. 1950)). Thus, the court’s holding was based on the reasoning that the rearrangement of parts would not modify the operation of the device because the placement of the starting switch did not modify how the hydraulic press operated. In contrast, as described above, coding the geographical location information in the suffix portion of the internet protocol address as opposed to the prefix portion, in the present invention, fundamentally modifies how embodiments of the present invention operate.

Furthermore, Applicants respectfully submit that MPEP 2144.04 states that “the mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims ... is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of [the] specification, to make the necessary changes in the reference device.” (MPEP 2144.04; see also *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 353, 353 (Bd. Pat. App. & Inter. 1984). The Office Action fails to provide a single motivation or reason, that is disclosed or suggested by Tiuri, to code the geographical location information in the suffix portion of the internet protocol address as opposed to the prefix portion.

Additionally, Applicants respectfully submit that *In re Japiske* dates back to 1950, before the enactment of the Patent Act of 1952. Furthermore, applicants respectfully submit that *In re Japiske* was directed towards a mechanical invention, whereas the subject matter of the present invention relates to internet protocol addresses. As described above, the reasoning behind *In re Japiske* has less applicability to electrical inventions, as opposed to mechanical inventions, because rearranging of components often modifies how the invention operates in electrical inventions.

For these reasons, Applicants respectfully submit that *In re Japiske* has limited relevance to the issue of obviousness as it relates to the claims of the present application, and is not sufficient to establish a *prima facie* case of obviousness.

Therefore, for at least the reasons discussed above, Tiuri fails to disclose, teach, or suggest, all of the elements of 22, 33, and 43-46, and the Office Action fails to establish a *prima facie* case of obviousness as to whether said claims would have been obvious to one of ordinary skill in the art. Thus, Applicants respectfully request that this rejection be withdrawn.

Claims 23-25 and 28-32 depend upon claim 22. Claims 34-36 and 39-42 depend upon claim 33. Thus, Applicants respectfully submit that claims 23-25, 28-32, 34-36, and 39-42 should be allowed for at least their dependence upon claims 22 and 33, respectively, and for the specific limitations recited therein.

The Office Action rejected claims 26 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Tiuri, in view of U.S. Patent No. 6,249,820 (“Dobbins”), and further in

view of U.S. Patent No. 6,952,729 ("Bialk"). The Office Action took the position that Tiuri discloses all the elements of the claims with the exception of "the additional information is node specific information such as ... node layer information, street address, color or weight," as recited in claims 26 and 37. The Office Action then cited Dobbins and Bialk as allegedly curing the deficiencies of Tiuri. The rejection is respectfully traversed for at least the following reasons.

The description of Tiuri is incorporated herein. Dobbins discloses IP work group routing wherein multiple router interfaces are assigned the same IP network address. Dobbins further discloses that a transmission of datagrams is allowed only to or from hosts with certain addresses by locking network layer and physical layer addresses.

Bialk discloses a network management system and method for managing a hybrid fiber coaxial (HFC) network having network elements operable for communicating telephony, data and video signals with customer-premises equipment of a subscriber. A network management layer of the HFC network management system includes a network configuration manager which includes a service, design, and inventory (SDI) system having a database representing the HFC network. The database stores data representing the assigned capacity of the HFC network. The SDI system provides a query capability that includes a query by phone number, customer name, service address or network interface unit serial number.

Claims 26 and 37 depend upon claims 22 and 33, respectively. As discussed above, Tiuri does not disclose, teach, or suggest all of the elements of claims 22 and 33.

Furthermore, Dobbins and Bialk do not cure the deficiencies in Tiuri, as Dobbins and Bialk, whether considered individually, or in combination, also do not disclose, teach, or suggest, at least, “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claim 33. Thus, the combination of Tiuri, Dobbins, and Bialk does not disclose, teach, or suggest all of the elements of claims 22 and 33. Additionally, for the reasons discussed above, the Office Action fails to establish a *prima facie* case of obviousness with respect to claims 22 and 33, in light of Tiuri, Dobbins, and Bialk. Additionally, claims 26 and 37 should be allowed for at their dependence upon claims 22 and 33, and for the specific limitations recited therein.

The Office Action rejected claims 27 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Tiuri, in view of U.S. Patent No. 6,147,986 (“Orsic”). The Office Action took the position that Tiuri discloses all the elements of the claims with the exception of “wherein the address based on the geographic location information assigned to a mobile device is updated when the mobile device moves and said new address is informed to a register that controls the location of said mobile device,” as recited in claim 27, and “wherein the apparatus is configured to update the address assigned to a mobile device when the mobile device moves,” as recited in claim 38. The Office Action then cited Orsic as allegedly curing the deficiencies of Tiuri. The rejection is respectfully traversed for at least the following reasons.

The description of Tiuri is incorporated herein. Orsic discloses address updating of wireless mobile terminal hosts affiliated with a wired network. With respect to IP traffic, each base station is viewed as a router that connects a wireless access sub-network to the Global Internet. Each cell has its own IP address, referred to as “netid.” Each wireless mobile terminal/host is comprised of (netid, hostid). In addition, when a mobile terminal/host detaches itself from an “old” base station, the terminal/host relinquishes its old IP address.

Claims 27 and 38 depend upon claims 22 and 33, respectively. As discussed above, Tiuri does not disclose, teach, or suggest all of the elements of claims 22 and 33. Furthermore, Orsic does not cure the deficiencies in Tiuri, as Orsic also does not disclose, teach, or suggest, at least, “wherein the geographical location information is coded in the suffix portion of the address,” as recited in claim 22, and similarly recited in claim 33. Thus, the combination of Tiuri and Orsic does not disclose, teach, or suggest all of the elements of claims 22 and 33. Additionally, for the reasons discussed above, the Office Action fails to establish a *prima facie* case of obviousness with respect to claims 22 and 33, in light of Tiuri and Orsic. Additionally, claims 27 and 38 should be allowed for at their dependence upon claims 22 and 33, and for the specific limitations recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention

unanticipated and unobvious. It is therefore respectfully requested that all of claims 22-46 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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